Discrete Choice Approach For Assessing Deprivation Cost In Humanitarian Relief Operations

Cantillo, Vactor; Serrano Arrieta, Ivan Dario; Macea, Luis Fernando; Holgui´n Veras, Jose.

Abstract

One of the key objectives of humanitarian logistics is to guarantee the timely delivery of supplies to people affected by disasters during the response phase. In this regard, it is fundamental to design appropriate models to minimize the social costs of response operations to distribute essential supplies to populations in need. In addition to merely cover logistics cost, social costs include deprivations costs, which are an increasing function of deprivation time, derived from the human suffering caused by the lack of access to a good or a service. This research uses the theory of discrete choices to assess deprivation costs due to the time spent waiting for the delivery of a basket of basic supplies, defined as the changes in the welfare of people affected by disasters. To this end, we designed a stated choice survey, applied to people living in areas affected by floods and earthquakes in Colombia. The estimated models consider the influence of individual's socioeconomic characteristics and random effects on the deprivation cost functions. The functions have a nonlinear structure, strictly increasing, and convex on the deprivation time. The results are useful for estimating the social costs of humanitarian relief operations.

Keywords

Deprivation Costs; Disasters; Externalities; Humanitarian Logistics.